

## REMARKS

The Examiner is thanked for the thorough consideration given the present application.

By this amendment, Applicant amends claims 1 and 9 and adds new claims 23-26. Accordingly, claims 1-26 are pending in this application. Reexamination and reconsideration of the application in view of the foregoing amendments and the following remarks are respectfully requested.

The Examiner rejected claims 1-18 under 35 U.S.C § 112, 2<sup>nd</sup> paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention; rejected claims 1, 2, 7, 9, and 10 under 35 U.S.C. § 102(b) as being unpatentable over Applicant's Prior Art; rejected claims 3-6, 8, 11-18, 20, and 22 under 35 U.S.C § 103(a) as being unpatentable over FIGS. 1C and 2 of Applicant's Prior Art in view of Funada et al. (U.S. Pat. No.5,696,388); rejected claim 19 under 35 U.S.C § 103(a) as being unpatentable over FIGS. 1C and 2 of Applicant's Prior Art in view of FIG. 1A of Applicant's Prior Art; and rejected claims 21-22 under 35 U.S.C § 103(a) as being unpatentable over FIGS. 1C and 2 of Applicant's Prior Art in view of Funada et al. (U.S. Pat. No.5,696,388).

In the final Office Action dated April 24, 2001, claims 1-18 were rejected under 35 U.S.C. §112, 2<sup>nd</sup> paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner indicated that the phrase, "formed using the region as the substrate" in claims 1 and 9 is not understood.

While Applicant respectfully submits that the originally filed claims are clear and in full compliance with the requirements of 35 U.S.C. §112, second paragraph, claims 1 and 9 are amended for further clarity and to expedite the prosecution of the application.

The Examiner rejected claims 1-2, 7, 9, and 10 under 35 U.S.C. §102(b) as being unpatentable over Applicant's Prior Art. Applicants respectively traverse this rejection and reconsideration is requested.

Claims 1 and 9, as amended, are allowable over Applicant's Prior Art in that claims 1 and 9 recite a combination of elements, including for example, a substrate having a first, a second, and a third region, a pixel array formed on the substrate in the first region, a driver formed on the substrate in the second region, and a control unit formed on the substrate in the third region. The cited references, singly or in combination, do not teach or suggest at least these elements of the claimed invention.

For example, regarding FIC. 1C of the present specification, "This technique enables fabrication of an LCD by mounting a CPU circuit and a controller, comprised of a CPU, ROMs, RAMs, and oscillators on a glass substrate. Accordingly, by **forming** pixels as an image display and a driver on the glass substrate 100 and **mounting** a controller, and a CPU circuit to control the pixels on the glass substrate 100, it is possible to fabricate a portable LCD product..." (page 4, second paragraph, **emphasis added**).

Moreover, the present specification recites, regarding FIG. 2 "...an aluminum layer 2 having patterns corresponding to drain/source wires and contact wires of a CPU circuit oriented in the y-direction is **deposited on a glass substrate 1** by sputtering. Next, a polycrystalline silicon layer 3 for a source/drain region is **formed by ...LPCVD...** Another p-Si layer 4 of an active layer is **formed** on the P+ or N+ layer LPCVD. After the p-Si layer 4 has been activated...a gate insulating silicon oxide layer 5 is **formed.**" Further, FIG. 2 teaches "The subcomponents of the LCD panel or module, that is, the peripherals such as the CPU, RAM, ROM, IC, resistors, capacitors, oscillators, connectors and the like, found on the bare chip 11 are

**fixed** to the mounting pad 8.” (page 4, last paragraph through page 5, second full paragraph, **emphasis added**).

Lastly, the present specification recites “In the related art above, after **forming** the CPU circuit and the controller by a **separate** semiconductor process, **on a wafer of single crystalline silicon**, the CPU circuit and the controller consisting of a CPU, RAM, ROM, IC, resistors, capacitors, oscillators, connectors, are **attached** to a panel of the LCD in order to fabricate an SOP typed LCD.” (page 5, last paragraph, **emphasis added**).

Accordingly, Applicant respectfully submits that the structure implied by a controller **formed on a wafer of single crystalline silicon in a first semiconductor process**, and then **mounted** to a panel of an LCD, **formed in an entirely separate, second semiconductor process** (see FIGS. 1C and 2 of the present Application), is not the same as, and therefore does not disclose, a structure implied by a controller **formed** on a substrate also having a pixel array and a driver **formed** thereon.

Applicant respectfully submits that claims 1 and 9 and claims 2-8, 10-18, 23, and 24, which depend from claims 1 and 9 are allowable over the cited references.

The Examiner rejected claim 19 under 35 U.S.C. §103(a) as being unpatentable over FIGS. 1C and 2 of Applicant's Prior Art in view of FIG 1A of Applicant's Prior Art. Applicants respectively traverse this rejection and reconsideration is requested.

Claims 19 and 20 are allowable over FIGS. 1C and 2 in view of FIG. 1A of Applicant's Prior Art in that claims 19 and 20 recite a combination of elements, including for example, a substrate with at least first, second and third regions, a pixel array formed on the substrate at the first region, a driver formed on the substrate at the second region, and a control unit formed on the substrate at the third region. The cited references, singly or in combination, do not teach or

suggest at least these elements of the claimed invention. Similar arguments presented above with respect to claims 1 and 9 are also applicable to claims 19 and 20.

The Examiner rejected claims 21-22 under 35 U.S.C. §103(a) as being unpatentable over FIGS. 1C and 2 of Applicant's Prior Art in view of Funada et al. Applicant respectively traverses this rejection and reconsideration is requested.

Claims 21 and 22 are allowable over FIGS. 1C and 2 of Applicant's Prior Art in view of Funada et al. in that claims 21 and 22 recite a combination of elements, including for example, a substrate with at least first, second and third regions, a pixel array formed on the substrate at the first region, a driver formed on the substrate at the second region, and a control unit formed on the substrate at the third region. The cited references, singly or in combination, do not teach or suggest at least these elements of the claimed invention. Similar arguments presented above with respect to claims 1 and 9 are also applicable to claim 21 and 22.

The Examiner rejected claims 3-6, 8, and 11-18, 20, and 22 under 35 U.S.C. §103(a) as being unpatentable over FIGS. 1C and 2 of Applicant's Prior Art in view of Funada et al. Applicants respectively traverse this rejection and reconsideration is requested.

The Examiner cites Funada et al. as teaching "*in column 1, lines 17-68 that the thin film transistors (TFTs) which include the pixel array and driver are formed of amorphous silicon, single crystalline silicon, or polycrystalline silicon.*"

Applicant submits that Funada et al. fails to cure the deficiencies of Applicant's Prior Art, as discussed above with respect to independent claims 1, 9, 19, and 21. Applicant respectfully submits that claims 3-6, 8, and 11-18, 20, 22, 25, and 26 are allowable at least in part due to their dependence on claims 1, 9, 19, and 21.

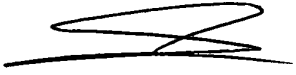
Applicants believe the foregoing amendments place the application in condition for allowance and early, favorable action is respectfully solicited. Should the Examiner deem that a telephone conference would further the prosecution of this application, the Examiner is invited to call the undersigned attorney at (202) 624-1250.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136. Please credit any overpayment to deposit Account No. 50-0911.

Respectfully submitted,

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## **EXHIBIT I - VERSION SHOWING AMENDED CLAIM CHANGES**

Claims 23-26 have been added.

1. (Amended) A system-on-panel typed liquid crystal display, comprising:

a substrate including at least first, second and third regions;

a pixel array formed [using the first region as the substrate] on the substrate in the first region;

a driver formed [using the second region as the substrate] on the substrate in the second region; and

a control unit formed [using the third region as the substrate] on the substrate in the third region, wherein the control unit includes switching devices having at least one active layer.

9. (Amended) A system-on-panel typed liquid crystal display, comprising:

a substrate including at least first, second and third regions;

a pixel array formed [using the first region as the substrate] on the substrate in the first region;

a driver formed [using the second region as the substrate] on the substrate in the second region; and

a control unit formed [using the third region as the substrate] on the substrate in the third region, wherein the control unit includes switching devices having at least one active layer formed of single crystalline silicon.